WHAT IS CLAIMED IS:

1. An electromagnetic fuel injector having an electromagnetic coil for valve driving, characterized in that a bobbin with said coil to be wound thereon is constituted by a synthetic resin containing a filler having good heat conductivity.

2. An electromagnetic fuel injector comprising a stationary core arranged at the center of the main body of the injector, an electromagnetic coil arranged at the outside of the stationary core through a bobbin, and a cylindrical yoke arranged further at the outside of the electromagnetic valve, characterized in that said bobbin is constituted by a synthetic resin containing a filler having good heat conductivity, and heat of said coil is conducted to said core and said yoke, and an air gap is formed between the most outside surface in said coil and the inner circumference of said yoke.

3. An electromagnetic fuel injector having an electromagnetic coil for valve driving, characterized in that a bobbin with said coil to be wound thereon is constituted by polyphenylene sulfide (hereinafter referred to as "PPS") containing iron oxide and/or alumina as a filler.

4. An electromagnetic fuel injector as set forth in claim 3, wherein said bobbin is constituted by iron oxdide and/or alumina in 30 - 80 weight %, and further by PPS and

glass fiber.

5. An electromagnetic fuel injector having an electromagnetic coil for valve driving, characterized in that a bobbin with said coil to be wound thereon is constituted by a resin molding material of heat conductivity being 0.4 W/mk or more.

6. An electromagnetic fuel injector having an electromagnetic coil for valve driving, characterized in that a bobbin with said coil to be wound thereon is constituted by a resin molding material of heat conductivity being 1.0 - 3.0 W/mk.

7. An electromagnetic fuel injector as set forth in claim 1, wherein said electromagnetic fuel injector is in a system that a fuel is injected directly into a cylinder of an internal combustion engine.

8. An electromagnetic fuel injector as set forth in claims 1, wherein said electromagnetic fuel injector is in a system that a fuel is injected directly into a cylinder of an internal combustion engine, and the battery voltage is impressed directly to said electromagnetic coil during the valve opening, and said electromagnetic coil is provided with the first coil in which a large exciting current flows in a short time during the rising of the valve opening operation so as to secure magnetomotive force necessary to open the valve mainly, and with the second coil in which a relatively small exciting current flows so

as to secure magnetomotive force to hold the valve opening state mainly after the valve is opened.

9. An electromagnetic fuel injector wherein two types of electromagnetic coils different in characteristics are provided in an annular space formed between a stationary core arranged at the center part of the main body of the injector and a cylindrical yoke arranged in the outside of the stationary core, and the space between said stationary core and said yoke is sealed by a seal ring, and said coils are wound separately in the axial direction on one bobbin, and among them, one coil (hereinafter referred to as "first coil")has a winding region near a movable unit with a valve element being the object of magnetic suction, and the other coil (hereinafter referred to as "second coil") has a winding region remote from the movable unit, characterized in that said bobbin has step difference of the outer diameter so that the bobbin outer diameter in the region with the first coil wound thereon, and on the other hand, said bobbin has step difference of the inner diameter so that the bobbin inner diameter in the region with the first coil wound thereon is made large partially so as to secure the annular space for interposing said seal ring.

10. An electromagnetic fuel injector as set forth in claim 9, wherein said first and second coils are set so that said first coil has the large wire diameter and the number of turns being little and a large current flows in

comparison with the second coil, and magnetomotive force necessary to move the valve from the closing position to the opening position is generated by the first coil, and magnetomotive force to hold the valve opening state is generated by the second coil.

11. An electromagnetic fuel injector as set forth in claim 9, wherein said bobbin is molded by a synthetic resin containing a filler of good heat conductivity.

12. An electromagnetic fuel injector for an internal combustion engine characterized in that said electromagnetic fuel injector comprises a first coil in which a large current flows in a short time during the rising of the valve opening operation so as to secure magnetomotive force necessary to open the valve, a second coil in which a relatively small current flows so as to secure magnetomotive force to hold the opening state of the valve, and a connector having three terminals, and said first coil and said second coil are connected to the power source and two switching elements for energizing control by the three terminals.

13. An electromagnetic fuel injector as set forth in claim 12, wherein among the three terminals, the first terminal connects one end of the first coil to the power source, and the second terminal connects other end of the first coil to the first switching element and also to one end of the second coil, and the third terminal connects

end of the second coil, and the third terminal connects other end of the second coil to the second switching element.

14. An electromagnetic fuel injector as set forth in claim 12, wherein among the three terminals, the first terminal connects one end of the first coil and one end of the second coil to the power source, and the second terminal connects the other end of the first coil to the first switching element, and the third terminal connects the other end of the second coil to the second switching element.

15. An electomagnetic fuel injector wherein said electromagnetic fuel injector is provided with a first coil with time variation rate of magnetomotive force being large and a second coil with time variation rate of magnetomotive force being small, as electromagnetic coils for the valve driving, and the first coil and the second coil are arranged separately on one bobbin in the axial direction, and a connector part to connect the terminals of the coils to an external power source and a switching elements is projected to a lateral side on the upper side of the bobbin,

characterized in that a plurality of terminals of said first coil and said second coil are arranged on the upper end surface of a bobbin, and at least one of the terminals has the base part positioned at the opposite side

of said connector part with respect to an axial line of the main body of the injector, and the terminal has a curved part at the midway led from the base part to said connector part so as to avoid the axial line.

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